

## MEMORANDUM

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**To:** Gary Miller and Anne Foster  
U.S. Environmental Protection Agency

**Date:** January 26, 2016

**From:** Wendell Mears, David Keith, John Verduin, John Laplante, and Holly Samaha  
Anchor QEA, LLC

**Project:** 150557-01.01

**Cc:** Dave Moreira and Andrew Shafer, MIMC  
Phil Slowiak, IP

**Re:** San Jacinto River Waste Pits TCRA Armored Cap Maintenance Completion Report

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### INTRODUCTION

This document provides a summary of inspection, sampling, and maintenance activities completed on the armored cap installed as part of the Time Critical Removal Action (TCRA) at the San Jacinto River Waste Pits Superfund Site (TCRA Site). The TCRA was implemented by the Respondents, International Paper Company and McGinnes Industrial Maintenance Corporation (collectively, Respondents), under an Administrative Settlement Agreement and Order on Consent (AOC) with the U.S. Environmental Protection Agency (USEPA) – Docket No. 06-12-10, effective May 17, 2010 (USEPA 2010).

The inspection, sampling, and maintenance activities described in this report took place pursuant to a USEPA-approved work plan and pursuant to the approved Operations, Monitoring, and Maintenance Plan for the TCRA (OMM Plan). These activities followed an underwater inspection of the armored cap by USEPA on December 9 and 10, 2015, that identified a depressed underwater area on the northwestern section of the armored cap. Inspection activities were conducted on December 23, 2015, and identified the presence of armored cap materials within the depression but at less than the specified thickness in some locations. Sediment sampling took place on the same date. Maintenance activities to place geotextile and additional armored rock over and extending beyond the depressed area began on December 29, 2015, and were concluded on January 4, 2016. Respondents are evaluating what changes to the OMM Plan may be appropriate following completion of the above-described activities.

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## **BACKGROUND**

The USEPA performed an underwater inspection of the armored cap on December 9 and 10, 2015, and identified a depressed area on the northwestern part of the cap that required assessment (Investigation Area). On December 16, 2015, Respondents received direction from USEPA regarding the submission of a work plan for such activities. The Respondents submitted a draft Work Plan to USEPA on December 21, 2015 (Draft Work Plan; Attachment 1). On December 22, 2015, USEPA approved the sampling and delineation activities and requested modifications to some of the cap maintenance activities in the Draft Work Plan. The inspection and sampling activities took place on December 23, 2015. On December 28, 2015, the Respondents submitted to USEPA a revised Work Plan that addressed USEPA's December 22, 2015, comments (Work Plan; Attachment 2), and the Work Plan was approved by USEPA in a letter dated December 28, 2015. Following USEPA approval of the Work Plan, the Respondents' contractor, USA Environment, LP (Contractor), mobilized to the TCRA Site on Tuesday, December 29, 2015, to begin armored cap maintenance activities, and those activities were completed on January 4, 2016.

## **ACTIVITIES**

### **Delineation Activities and Collection of Surface Sediment Samples – Wednesday, December 23, 2015**

#### ***Probing and Delineation***

Using coordinates provided by USEPA, the field team (Wendell Mears from Anchor QEA, LLC, and Neil Henthorne and Kenneth Huebel from Benchmark Ecological Services, Inc., [BESI] for the Respondents) worked from a boat and used 10-foot-long, 3/4-inch, PVC pipes to probe the Investigation Area. The water depth was approximately 18 inches during the delineation activities. Those present on behalf of or with the permission of USEPA included Gary Miller of USEPA and an EA Engineering, Science, and Technology, Inc., (EA Engineering) technician for the USEPA who observed the delineation activities from the shoreline.

The PVC pipes were inserted into the substrate within the Investigation Area until armored cap material was encountered. If the probing did not confirm that the armored rock material at a particular location had the specified 12-inch cap thickness, a PVC pipe would be left in

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place at that location. Field personnel continued probing using a new section of PVC pipe at locations 3 to 5 feet from the probing location at which a PVC pipe had been placed.

Probing continued until no additional locations requiring that a PVC pipe be left in place were identified. Field personnel used a Trimble GPS to collect coordinates for a perimeter based on the PVC pipes placed during the probing to define an area shown in red on Figure 1 (Delineated Area).

Probes within the Delineated Area indicated cap material was present at varying thicknesses. The presence of an estimated minimum of 3 inches of armored cap material was confirmed at all locations probed within the Delineated Area. In some locations at which the PVC poles were placed, the estimated thickness of armored cap material detected during probing was greater than 3 inches.

Following the placement of the PVC pipe, additional probing was conducted outside the Delineated Area. This probing occurred along probe transects with USEPA oversight and direction in locating the transects (Figure 2), and both PVC pipe and a 24-foot-long aluminum probe were used. The armored cap along these transects could not be penetrated. One set of transects was completed along the shallow flat area immediately north of the Investigation Area (Figure 2, labeled Transect 1 and Transect 2) using PVC pipe to determine if soft sediment had accumulated atop the shallow flat section of the cap between the Investigation Area and slope; the upslope area toward the shoreline was visually inspected. Sediment deposits were not identified overlying the cap along these transects or toward the shoreline. A second set of probe transects was conducted from the toe of the slope to the top of the slope adjacent to and north of the Investigation Area (Figure 2, labeled Metal Probe 1 and Metal Probe 2). These probe transects were conducted using a 24-foot-long, 2-inch-diameter, aluminum pipe. Similar to the area around the Investigation Area, the cap on the slope could not be penetrated with the aluminum probe.

### ***Collection of Sediment Samples for Chemical Analysis***

Three sediment samples were collected for chemical analysis (including total organic carbon [TOC], percentage of moisture (%M), grain size, and dioxin/furans) from sample stations within the Delineated Area (Figure 2). A pole-mounted, 9-inch by-9 inch, Ekman sediment sampler was used to collect the sediment samples. The sampler collected materials in the top

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3 to 6 inches of the surface material. The three sediment samples collected from the Delineated Area were observed to include processed concrete cap material, shells, and black silty sand in varying ratios. The black silty sand material was segregated from the coarser grained cap material and shells for laboratory analyses.

Four sediment samples were also collected from sample stations in deeper water outside of the Investigation Area. These sediment samples were collected using a Ponar grab sampler on a line with a messenger to actuate the sampler. The closest sediment deposits to the Delineated Area suitable for sample collection and analysis were located at the toe of the slope in deeper water along the Metal Probe 1 transect (Figure 2). This area had an accumulation of sediment above the cap that was sampled for chemical analysis with USEPA oversight at Sample Locations 85, 86, 87, and 88 (Figure 2), as described below. The field team determined the sample locations in collaboration with USEPA.

Sediment samples were processed using pre-cleaned stainless steel bowls and spoons. The bowls and spoons were prepared, cleaned, and wrapped in aluminum foil prior to conducting the field sampling event. The USEPA collected split samples from one sample station within the Delineated Area and from two sample stations outside of the Delineated Area. The sample locations and splits are identified in Table 1.

### **Cap Maintenance Pre-Mobilization and Mobilization Activities – Thursday, December 24, Monday, December 28, 2015, and Tuesday, December 29, 2015**

Activity reports, including photographs, are provided in Attachment 3 (Armored Cap Maintenance Daily Construction Reports). The following provides a summary of those reports and activities. Anchor QEA and USA Environment were present for the Respondents on December 29, 2015; EA Engineering was present for the USEPA. (See the Armored Cap Maintenance Daily Construction Reports (Attachment 3) for a complete list of personnel.) Daily maintenance pre-mobilization activities included reviewing the Contractor's Health and Safety Plan, the Site access plan, and insurance certificates; notifying and coordinating with the Texas Department of Transportation (TxDOT); ordering materials and equipment; and notifying USEPA of the construction schedule. The area over which geotextile and armored rock were to be placed, pursuant to the USEPA-approved Work Plan (Maintenance Area), was defined prior to mobilization to the TCRA Site.

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Mobilization of equipment to the TCRA Site occurred on December 29, 2015. The components of the mobilization included the following:

- Mobilized a skid steer loader, an excavator, a long-reach excavator, and approximately 35 wooden mats to the TCRA Site
- Placed wooden mats on top of the southern portion of the central berm to act as a road for the equipment
- Transported remaining wooden mats to the north end of the central berm near the Maintenance Area to be used as a platform for the long-reach excavator during maintenance activities. The mats were used to limit ground contact pressure.

### **Maintenance Activities – Wednesday, December 30, 2015, to Monday, January 4, 2016**

Construction activities each day began with a tailgate safety meeting. (See the daily reports provided as Attachment 3 for a list of personnel and their affiliation.) On December 30, 2015, dump trucks delivered approximately 60 cubic yards of Armor Cap C rock from the stockpile to the TCRA Site. The rock was dumped into a temporary stockpile area located in the southeast corner of the Western Cell. The skid steer loader transported the rock from the temporary stockpile to the north end of the central berm near the Maintenance Area. A front end loader was later mobilized to the TCRA Site to aid in the rock transport.

Non-woven geotextile and armor rock were placed over the Maintenance Area during the afternoon of December 30, 2015. Specifications for the geotextile used for cap maintenance can be found in Attachment 4 (Geotextile Product Description Sheet). Geotextile was cut into five panels, each 35 to 40 feet long and 15 feet wide, to account for the total area of coverage, some rippling that was likely to occur during placement, and the required 2 foot overlapping of the panels. Before placement of geotextile and armor rock commenced, spray paint was used to mark the shoreline of the Western Cell in locations corresponding to the the eastern and western boundaries of the Maintenance Area (the Delineated Area eastern and western boundaries together with a 5-foot strip along those boundaries). Prior to beginning geotextile placement, the PVC pipes marking the western boundary of the Delineated Area were removed to allow for geotextile placement in a west-to-east direction.

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The first geotextile fabric panel was placed over the Maintenance Area using the western edge of the Maintenance Area marked on the shoreline as a guide. Sufficient armor rock was placed over the geotextile fabric to hold it in place. Markings were then made on the shoreline to represent the eastern edge of this panel. Using that marking, the next panel was placed with the required 2-foot overlap of the first panel. Armor rock sufficient to hold the second panel in place was then placed on the second panel, and the shoreline was marked to identify the eastern edge of this second panel. The same process was then followed until all five panels had been placed.

Until the last panel was placed, the PVC pipes delineating the eastern boundary of the Delineated Area were left in place. These PVC pipes, which establish the longer north to south boundary of the Delineated Area, were used during geotextile placement as a means of defining the north and south edges of the Delineated Area and the boundary of the Maintenance Area located five feet beyond the Delineated Area.

The above steps ensured that the geotextile was placed with a minimum 5-foot overlap beyond the Delineated Area boundary in all principal directions. After the geotextile had been placed over the entire Maintenance Area, the long-reach excavator placed the full thickness of armor rock on top.

To confirm the required minimum 1-foot thickness of armor rock in the Maintenance Area, probing took place on December 31, 2015. Measuring tape was affixed to a metal probing rod, and the depth to the geotextile fabric and depth to the armor rock were recorded for each probing location. The difference between the two measurements is the thickness of the armor rock above the geotextile fabric. Table 2 lists the results from the confirmation probing. The initial probing indicated there were locations where additional armor rock was required to attain the minimum 1-foot thickness. Additional armor rock was placed in these areas, and probing was conducted again to verify a minimum 1-foot thickness was achieved.

### ***Demobilization Activities – Monday, January 4, 2016***

On the morning of January 4, 2016, a low tide made portions of the Maintenance Area visible above the water surface. A few locations in the southern portion of the Maintenance Area were observed where the edge of the newly installed geotextile sheets was exposed.

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Additionally, a low spot was identified in the northeast corner of the Maintenance Area and a small flap of geotextile along the southern border of the Maintenance Area. Additional armor rock was placed in these areas with the long-reach excavator. The low spot had been probed on December 31; the low spot was approximately 1 foot by 2 feet in surface area.

Armored cap maintenance construction was completed on Monday, January 4, 2016, and a post-construction survey of the Maintenance Area was completed on the same date. Figure 1 shows the armor rock Delineated and Maintenance Area boundaries. The Maintenance Area boundaries extend 5 feet beyond the Delineated Area as specified by the Work Plan. The figure also contains cross sections of the Maintenance Area. Each cross section displays pre- and post-construction topographic survey data and a line depicting the 1-foot minimum required thickness.

The Contractor loaded the crane mats, skid steer, front end loader, and long-reach excavator for transport from the TCRA Site on Monday, January 4, 2016. The TxDOT right-of-way was inspected for damage or debris. All materials and equipment used for the armored cap maintenance were demobilized from the TCRA Site on Monday, January 4, 2016.

## **TABLES**

|         |   |
|---------|---|
| Table 1 | Sediment Sample Stations, Sample IDs, Sample Times, Coordinates, and Descriptions (Samples Collected on 12/23/15) |
| Table 2 | Confirmation Probing Results  |

## **FIGURES**

|          |  |
|----------|--|
| Figure 1 | Armor Rock Placement Plan and Cross Sections     |
| Figure 2 | Summary of Delineation Work on December 23, 2015 |

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## ATTACHMENTS

Attachment 1 – Respondents' December 21 Draft Work Plan

Attachment 2 – Respondents' December 28 Work Plan

Attachment 3 – Armored Cap Maintenance Daily Construction Reports

Attachment 4 – Geotextile Product Description Sheet

## REFERENCES

Anchor QEA(Anchor QEA, LLC), 2010. *Removal Action Work Plan*, San Jacinto River Waste Pits Superfund Site. Prepared for U.S. Environmental Protection Agency (USEPA) Region 6 on behalf of McGinnes Industrial Maintenance Corporation and International Paper Company. November 2010.

Anchor QEA, 2011. *Removal Action Work Plan*, San Jacinto River Waste Pits Superfund Site. Prepared for U.S. Environmental Protection Agency (USEPA) Region 6 on behalf of McGinnes Industrial Maintenance Corporation and International Paper Company. Revised February 2011.

Anchor QEA, 2012. *Revised Draft Final Removal Action Completion Report*, San Jacinto River Waste Pits Superfund Site. Prepared for McGinnes Industrial Maintenance Corporation, International Paper Company, and U.S. Environmental Protection Agency (USEPA) Region 6. Revised March 2012.

USEPA (U.S. Environmental Protection Agency), 2010. *Administrative Settlement Agreement and Order on Consent for Removal Action*. U.S. Environmental Protection Agency Region 6 CERCLA Docket No. 06-03-10. In the matter of: San Jacinto River Waste Pits Superfund Site Pasadena, Harris County, Texas. International Paper Company and McGinnes Industrial Management Corporation, Respondents.

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## TABLES

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**Table 1**  
**Sediment Sample Stations, Sample IDs, Sample Times, Coordinates, and Descriptions (Samples Collected on 12/23/2015)**

| Sample Station | Sample Identifier | Sample ID | Sample Type  | Sample Time | Coordinates <sup>1</sup> |               | Sample Area                           | Sediment Description  | Notes   |
|----------------|-------------------|-----------|--------------|-------------|--------------------------|---------------|---------------------------------------|---|---|
|                |                   |           |              |             | Easting                  | Northing      |                                       |   |   |
| SJNE082        | SJNE082-GR1       | SD 0001   | Surface grab | 1345        | 3,216,956.24             | 13,857,785.96 | Work Area                             | 0-0.6" Small amount of black silty sandy material mixed with concrete rocks and shell.  | PVC pipe was used to probe within the Work Area to find a location to collect a grab sample. Spooned around concrete and shell to collect sufficient sample for chemical analysis.  |
| SJNE083        | SJNE083-GR1       | SD 0002   | Surface grab | 1410        | 3,216,954.85             | 13,857,781.08 | Work Area                             | 0-0.6" Small amount of black silty sandy material mixed with concrete rocks and shell. There was a higher percentage of sediment in this sample than the sample collected at SJNE082. | PVC pipe was used to probe within the Work Area to find a location to collect a grab sample. Spooned around concrete and shell to collect sufficient sample for chemical analysis. USEPA collected a split of the sample. |
| SJNE084        | SJNE084-GR1       | SD 0003   | Surface grab | 1430        | 3,216,960.01             | 13,857,777.61 | Work Area                             | 0-0.6" Small amount of black silty sandy material mixed with concrete rocks and shell. There was a higher percentage of sediment in this sample than the sample collected at SJNE082. | PVC pipe was used to probe within the Work Area to find a location to collect a grab sample. Spooned around concrete and shell to collect sufficient sample for chemical analysis.  |
| SJNE085        | SJNE085-GR1       | SD 0004   | Surface grab | 1455        | 3,216,942.18             | 13,857,824.37 | Toe of Slope                          | 0-0.25" Brown silty sand, 0.25-6" Black sand.   | Sample collected at the toe of the slope in sediment deposition area (approximately 50 feet from the Delineated Area). USEPA collected a split of the sample.   |
| SJNE086        | SJNE086-GR1       | SD 0007   | Surface grab | 1510        | 3,216,942.93             | 13,857,828.62 | Toe of Slope                          | 0-0.25" Brown silty sand, 0.25-6" Black sand.   | Sample collected at the toe of the slope approximately 50 feet from the Delineated Area.  |
| SJNE087        | SJNE087 -GR1      | SD 0008   | Surface grab | 1535        | 3,216,967.31             | 13,857,874.79 | Deep water area adjacent to Work Area | 0-0.25" Brown silty sand, 0.25-6" Black sand.   | Sample collected from a station in deep water approximately 90 feet from the Delineated Area. USEPA collected a split of the sample.  |
| SJNE088        | SJNE088 -GR1      | SD 0010   | Surface grab | 1610        | 3,216,900.27             | 13,857,907.55 | Deep water area adjacent to Work Area | 0-0.25" Brown silty sand, 0.25-6" Black sand.   | Sample collected from a station in deep water approximately 120 feet from the Delineated Area.  |

Note:

<sup>1</sup> Coordinates are projected in NAD83 State Plane, Texas South Central, Feet

**Table 2**  
**Confirmation Probing Results**

| Probing Location Number | Latitude         | Longitude        | Rock Thickness above Geotextile (inches) | Comments   |
|-------------------------|------------------|------------------|--|--|
| 1                       | 29° 47' 43.68" N | 95° 03' 46.90" W | 0  | Outside of the Investigation Area  |
| 2                       | 29° 47' 43.64" N | 95° 03' 46.92" W | 15                                       |  |
| 3                       | 29° 47' 43.66" N | 95° 03' 47.07" W | 16                                       |  |
| 4                       | 29° 47' 43.66" N | 95° 03' 46.93" W | 22                                       |  |
| 5                       | 29° 47' 43.73" N | 95° 03' 46.96" W | 24                                       |  |
| 6                       | 29° 47' 43.64" N | 95° 03' 46.89" W | 20                                       |  |
| 7                       | 29° 47' 43.81" N | 95° 03' 46.83" W | 23                                       |  |
| 8                       | 29° 47' 43.72" N | 95° 03' 46.92" W | 6  | Added additional rock after low probing result                             |
| 9                       | 29° 47' 43.72" N | 95° 03' 46.89" W | 11                                       | Added additional rock after low probing result                             |
| 10                      | 29° 47' 43.68" N | 95° 03' 46.84" W | 4  | Added additional rock after low probing result                             |
| 11                      | 29° 47' 43.74" N | 95° 03' 46.99" W | 17                                       |  |
| 12                      | 29° 47' 43.74" N | 95° 03' 46.99" W | 24                                       |  |
| 13                      | 29° 47' 44.11" N | 95° 03' 47.04" W | 13                                       |  |
| 14                      | 29° 47' 43.89" N | 95° 03' 46.82" W | 9  | Added additional rock after low probing result                             |
| 15                      | 29° 47' 43.90" N | 95° 03' 46.85" W | 19                                       |  |
| 16                      | 29° 47' 43.76" N | 95° 03' 46.92" W | 29                                       | Confirmation Probe near Location Number 8 after additional rock placement  |
| 17                      | 29° 47' 43.85" N | 95° 03' 46.84" W | 22                                       | Confirmation Probe near Location Number 14 after additional rock placement |
| 18                      | 29° 47' 43.87" N | 95° 03' 46.84" W | 9  | Added additional rock after low probing result                             |
| 19                      | 29° 47' 43.87" N | 95° 03' 46.84" W | 30                                       |  |
| 20                      | 29° 47' 43.64" N | 95° 03' 47.00" W | 14                                       |  |
| 21                      | 29° 47' 43.66" N | 95° 03' 46.66" W | 12                                       |  |
| 22                      | 29° 47' 43.76" N | 95° 03' 46.80" W | 15                                       | Confirmation Probe near Location Number 18 after additional rock placement |
| 23                      | 29° 47' 43.48" N | 95° 03' 46.65" W | 9  | Added additional rock after low probing result                             |
| 24                      | 29° 47' 43.56" N | 95° 03' 46.66" W | 22                                       |  |
| 25                      | 29° 47' 43.57" N | 95° 03' 46.59" W | 17                                       |  |
| 26                      | 29° 47' 43.47" N | 95° 03' 46.37" W | 30                                       |  |
| 27                      | 29° 47' 43.43" N | 95° 03' 46.50" W | 13                                       | Confirmation Probe near Location Number 23 after additional rock placement |
| 28                      | 29° 47' 43.60" N | 95° 03' 46.58" W | 15                                       |  |

Notes:

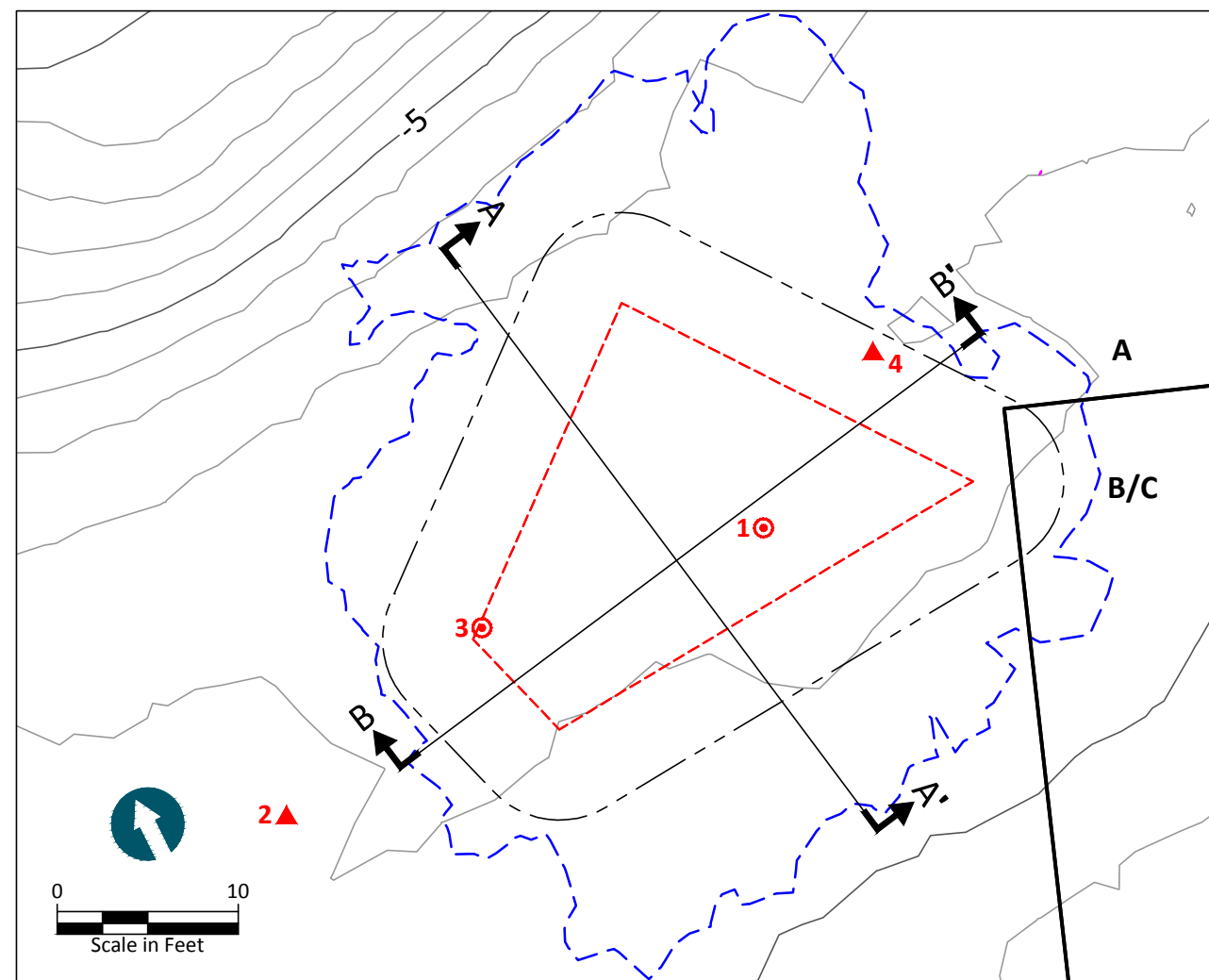
Additional rock was placed in areas that did not have 12 inches or more of material above the geotextile.

Areas where additional rock was placed were reprobod to confirm that the minimum thickness was achieved.

# FIGURES

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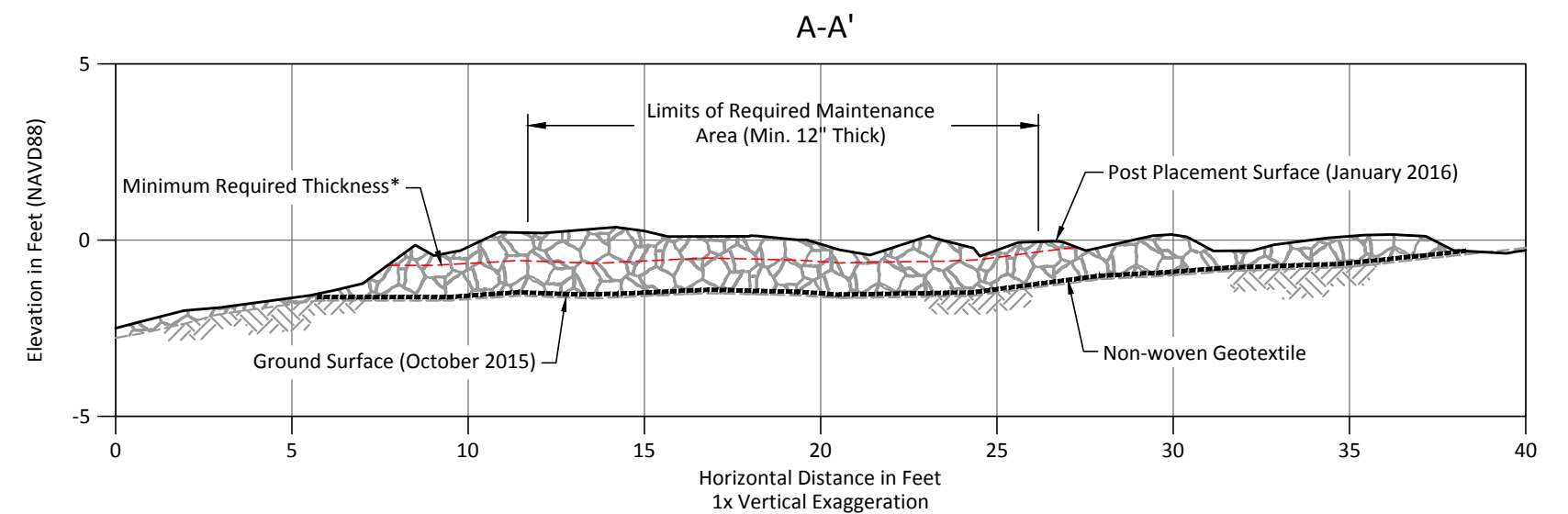
M:\CAD\Projects\0557-McGinnes Industrial Maintenance Corp\San Jacinto Waste Pits\Quarterly Inspection Reports\2015-10\0557-QIR-006.dwg Work Area  
Jan 15, 2016 11:15am dholmer



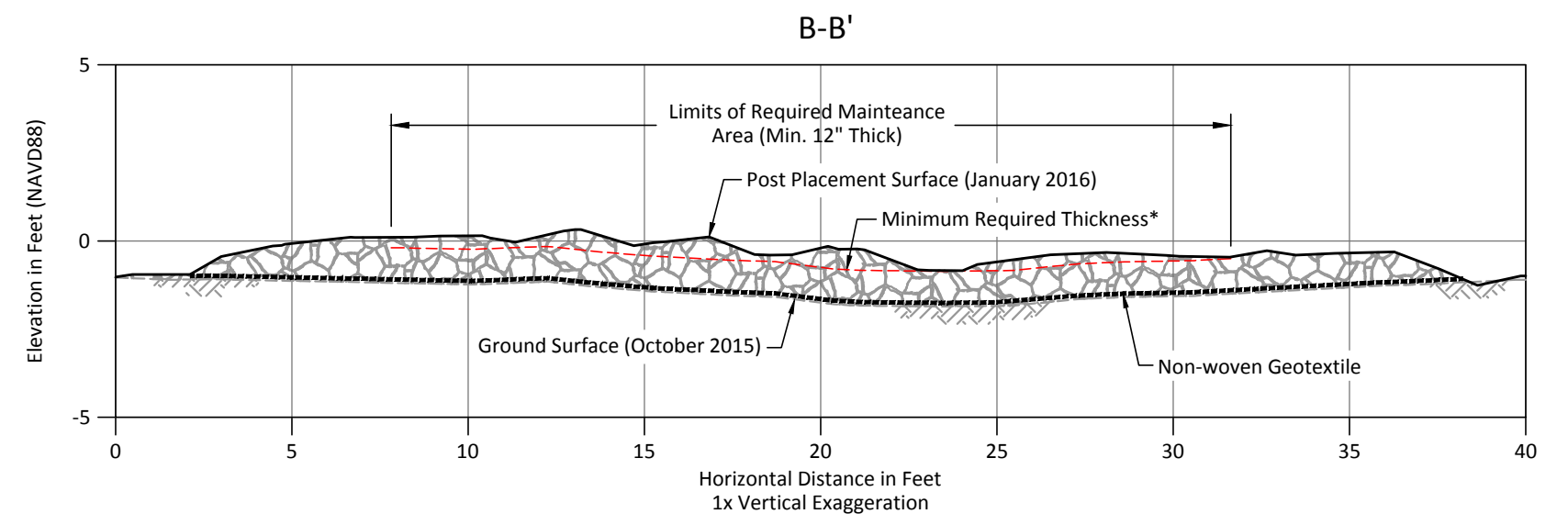
**SOURCE:** Drawing prepared from surveys provided by Hydrographic Consultants dated July 2015 and October 2015.  
**HORIZONTAL DATUM:** Texas State Plane South Central, NAD83, U.S. Feet.  
**VERTICAL DATUM:** NAVD 88.

**LEGEND:**

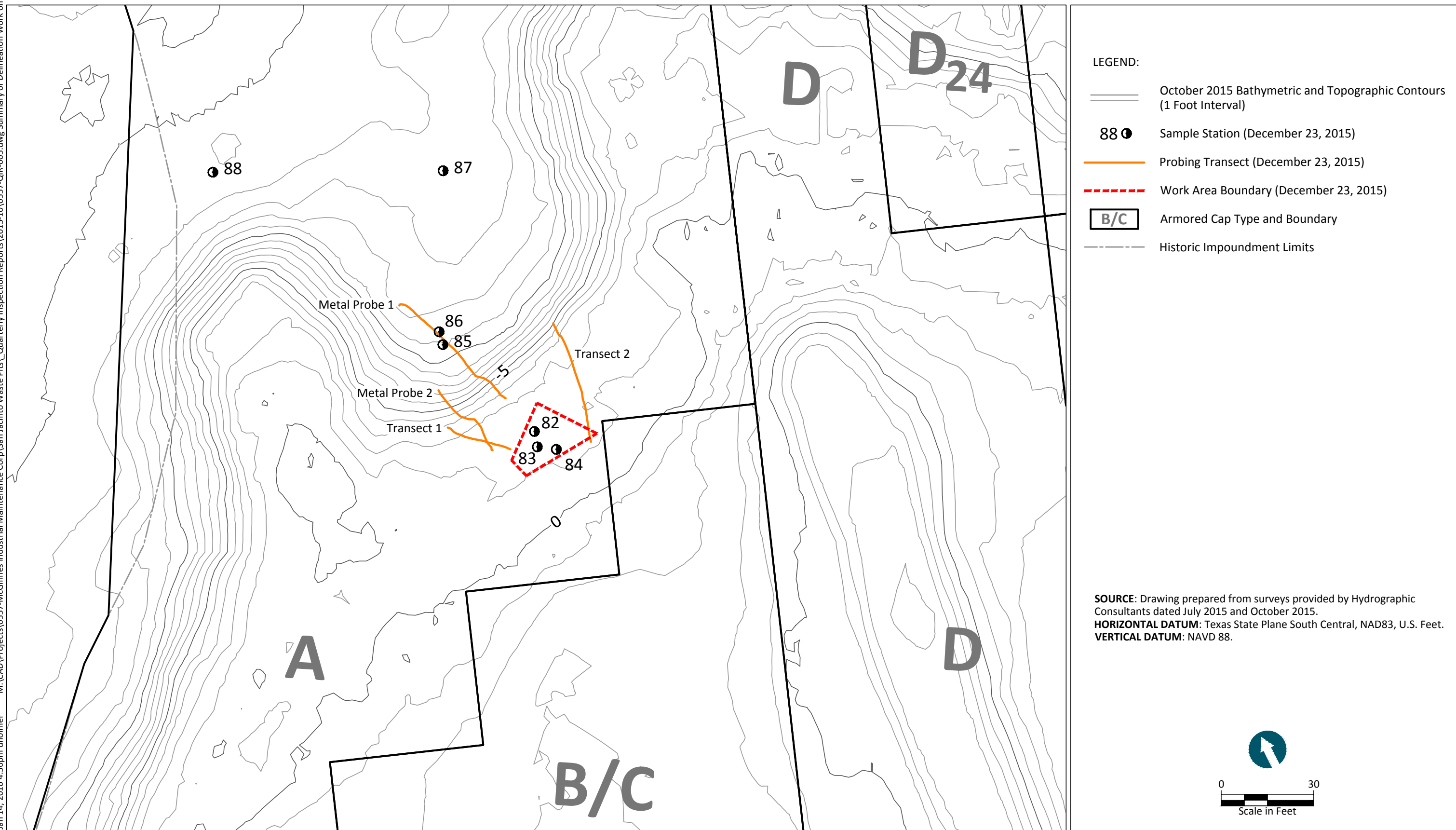
- October 2015 Bathymetric and Topographic Contours (1 Foot Interval)
- Limits of Delineated Area (December 2015)
- Limits of Required Maintenance Area (December 2015)
- Toe of Actual Armor Rock Placement (December 2015)
- USEPA Probe Location (December 2015), Rock
- USEPA Probe Location (December 2015), Sediment
- Armored Cap Type and Boundary



\* Minimum thickness was field verified by probing.



\* Minimum thickness was field verified by probing.



## ATTACHMENT 1

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614 Magnolia Avenue  
Ocean Springs, Mississippi 39564  
Phone 228.818.9626  
Fax 228.818.9631

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December 21, 2015

Gary Miller, Remedial Project Manager  
U.S. Environmental Protection Agency, Region 6  
Superfund Division (6SF-RA)  
1445 Ross Avenue, Suite 1200  
Dallas, Texas 75202-2733

Re: Draft Work Plan for Rock Placement on the Time Critical Removal Action  
Armored Cap, San Jacinto River Waste Pits Superfund Site, Channelview, Texas

Dear Gary:

As part of the Time Critical Removal Action (TCRA) for the San Jacinto River Waste Pits Site (Site), an armored cap was constructed adjacent to the San Jacinto River north of the Interstate 10 (I-10) bridge crossing. The United States Environmental Protection Agency (USEPA) performed an underwater inspection of the armored cap on December 9 and 10, 2015, and identified a small area on the northwestern part of the cap that requires placement of cap material (Figure 1).

In accordance with the email from you on December 16, 2015, McGinnes Industrial Maintenance Corporation and International Paper, the Respondents on the Site, propose the following:

- Delineation and collection of surface sediment samples in the area in which cap material will be placed (Work Area).
- Placement of cap material over the Work Area

The following provides details on the approach and procedures for completing the work.



## **Collection of Surface Sediment Samples in the Work Area**

The following provides a surface sediment sampling plan for the Work Area and identifies the quality assurance and quality control (QA/QC) procedures that will be applied during the sediment sampling, sample analysis, data validation, information management, and reporting. Sampling described by this Work Plan will be conducted consistent with the approved Sediment Sampling and Analysis Plan (SAP; Integral and Anchor QEA 2010) and related appendices. Only those aspects unique to the sediment sampling to be conducted as part of this effort are addressed by this Work Plan.

## **Data Quality Objectives and Goals of the Study**

The data quality objectives for this sampling are to collect surface sediment data in the Work Area. USEPA requested surface sediment samples be collected from the Work Area in an email to David Keith on December 16, 2015. Surface sediments will be collected from 0 to 6 inches (0 – 15 cm) at four locations within the Work Area. As described below, probing of the cap surface will be the primary means to define the final sample locations. Sediment samples will be collected following the probing event and delineation of the Work Area.

## **Schedule for Sediment Sampling**

Following approval of this Work Plan, surface sediment samples will be collected, as soon as is practical, following the delineation of the Work Area through the probing exercise described below. All analysis will be undertaken in the typical analysis and validation time frame for this project, which requires 2 months following sample retrieval/collection.

## **Project Organization, Methods, and Quality Assurance Procedures**

Sediment sampling and analyses described in this Work Plan will be conducted in full compliance with the Sediment SAP (Integral and Anchor QEA 2010) and related appendices (including Appendix A, the Field Sampling Plan), in the context of the objectives that are relevant to this task. The 2010 Sediment SAP describes the means to achieve all QA/QC requirements and documentation articulated by USEPA's guidance for preparation of quality assurance project plans and field sampling plans (USEPA 1998, 2001); these specifications will be applied to the collection, analysis, QA review, data management, validation, and

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reporting of the information generated as described in this draft addendum. Sampling personnel will comply with the overall Health and Safety Plan (HASP) (Anchor QEA 2009), Addendum 2 to this overarching HASP (Attachment A1 to the Sediment SAP), and the HASP Addendum provided in Attachment 1 to Draft Addendum 3 to the Sediment SAP.

### **Delineation of the Work Area and Identification of Sample Locations**

Probing will be conducted in order to delineate the Work Area. Probes will be advanced at approximate 5-foot intervals along a series of transects to determine any locations in which cap material at the specific thickness is not present. Transects will be spaced approximately 5 feet apart.

GPS coordinates will be collected to define the perimeter of the Work Area and a wooden survey stake with flagging will be driven at locations along this perimeter. Four sediment sampling locations will be identified within the Work Area. The locations will be configured so the four surface sediment samples are evenly paced on a lateral basis within the Work Area.

### **Placement of Geotextile and Armor Rock**

After the surface sediment sampling, geotextile and armor rock will be placed over the Work Area, with overlap beyond the boundaries of the Work Area as described below. As part of the TCRA planning for cap maintenance, two stockpiles of armor rock (armor rock C and armor rock D) were purchased and staged near the TCRA Site. Both armor rock C and armor rock D are larger than the armor rock A used in this portion of the armored cap. Non-woven geotextile will be placed over the Work Area, with a minimum 1-foot thickness of armor rock C on top of the geotextile. Geotextile seams will be either sewn before deployment or overlapped in accordance with supplier recommendations, or at least 2 feet, whichever is greater. The final extent of the cover will be such that there will be at least 5 feet of overlap of the geotextile into areas surrounding the Work Area.

Work will be conducted by the Respondents' on-call contractor, USA Environment (USA). Based on discussions with USA, access to the Work Area from the land side is necessary due

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to shallow water conditions. Consistent with previous land-based construction at the TCRA Site, work will be conducted as follows:

- Rock will be delivered to the TCRA Site using dump trucks to deliver material to a location in the Texas Department of Transportation right-of-way adjacent to the TCRA cap.
- Small equipment will be used to move rock from the delivery location to a stockpile near the Work Area.
- The rock will be transferred from the stockpile into the Work Area using a long-reach excavator working on mats to limit ground contact pressure.
- Work will be done during low water conditions, which are both tide- and weather-dependent at the TCRA Site.

The construction duration is estimated to be 1 to 2 weeks.

## **Schedule**

With USEPA's approval, the tentative schedule is to complete the delineation of the area of interest and surface sediment sampling on Wednesday, December 23, 2015: mobilization of construction equipment and cap material will begin on Tuesday, December 29, 2015, assuming weather, tide, and access conditions allow those activities. Please let us know if you have any concerns with the proposed sampling and cap maintenance activities, and do not hesitate to contact me if you would like to discuss anything.

Sincerely,

David C. Keith  
Project Coordinator  
Anchor QEA, LLC

cc: Phil Slowiak, International Paper Company  
Dave Moreira, McGinnes Industrial Maintenance Corporation  
John Laplante, Anchor QEA, LLC

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## References

Anchor QEA, 2009. *Health and Safety Plan San Jacinto River Waste Pits Superfund Site*. Prepared for McGinnes Industrial Maintenance Corporation, International Paper Company, and U.S. Environmental Protection Agency, Region 6. Anchor QEA, Ocean Springs, MS.

Integral and Anchor QEA, 2010. *Sampling and Analysis Plan: Sediment Study San Jacinto River Waste Pits Superfund Site*. Prepared for McGinnes Industrial Maintenance Corporation, International Paper Company, and U.S. Environmental Protection Agency, Region 6. Integral Consulting Inc., Seattle, WA, and Anchor QEA, Ocean Springs, MS.

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USEPA (U.S. Environmental Protection Agency), 1998. *EPA Guidance for Quality Assurance Project Plans*. EPA QA/G-5. U.S. Environmental Protection Agency, Washington, DC.

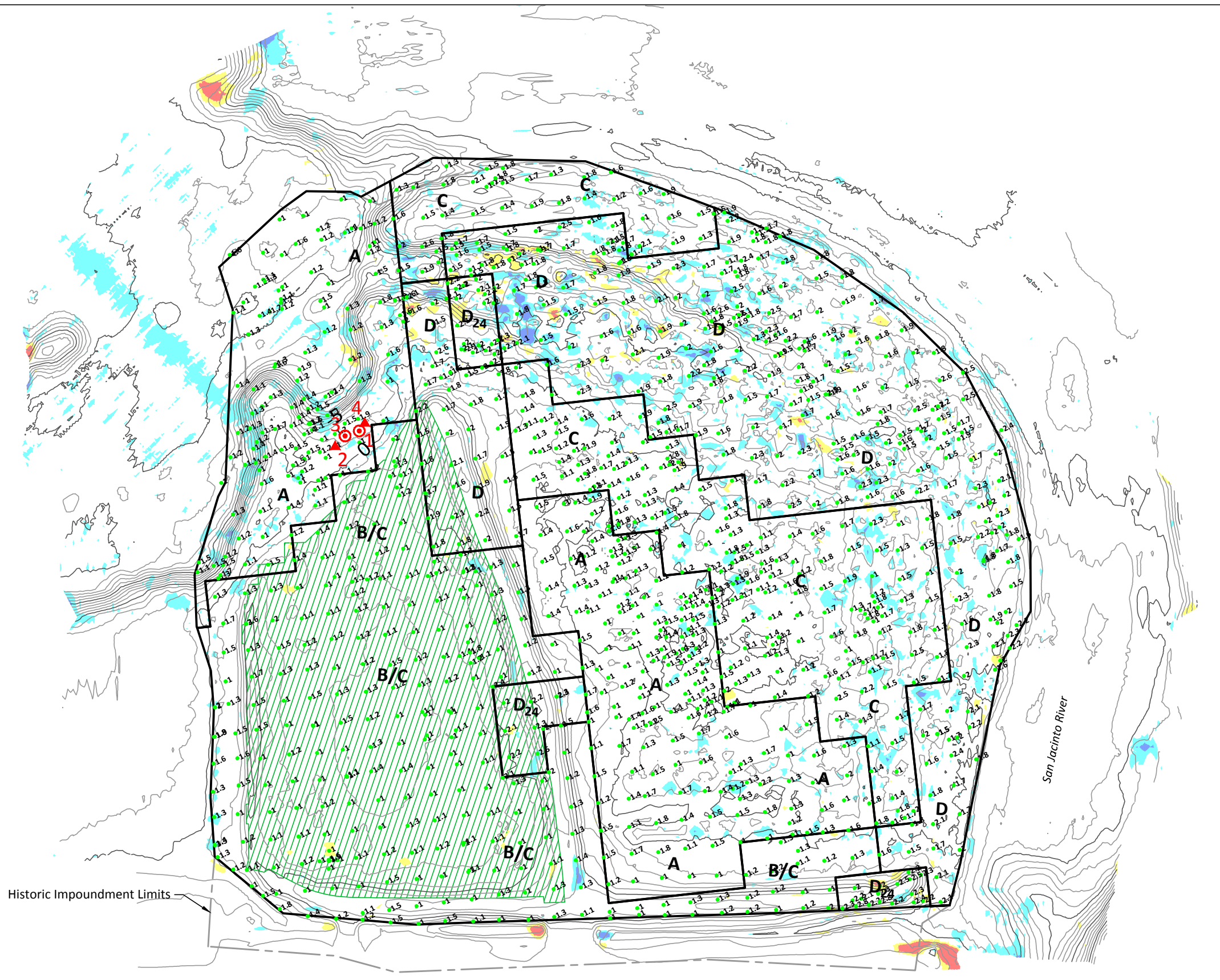
USEPA, 2001. *EPA Requirements for Quality Assurance Project Plans*. EPA QA/R-5.

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## FIGURES

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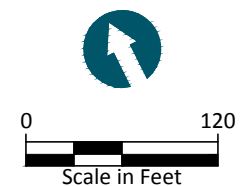




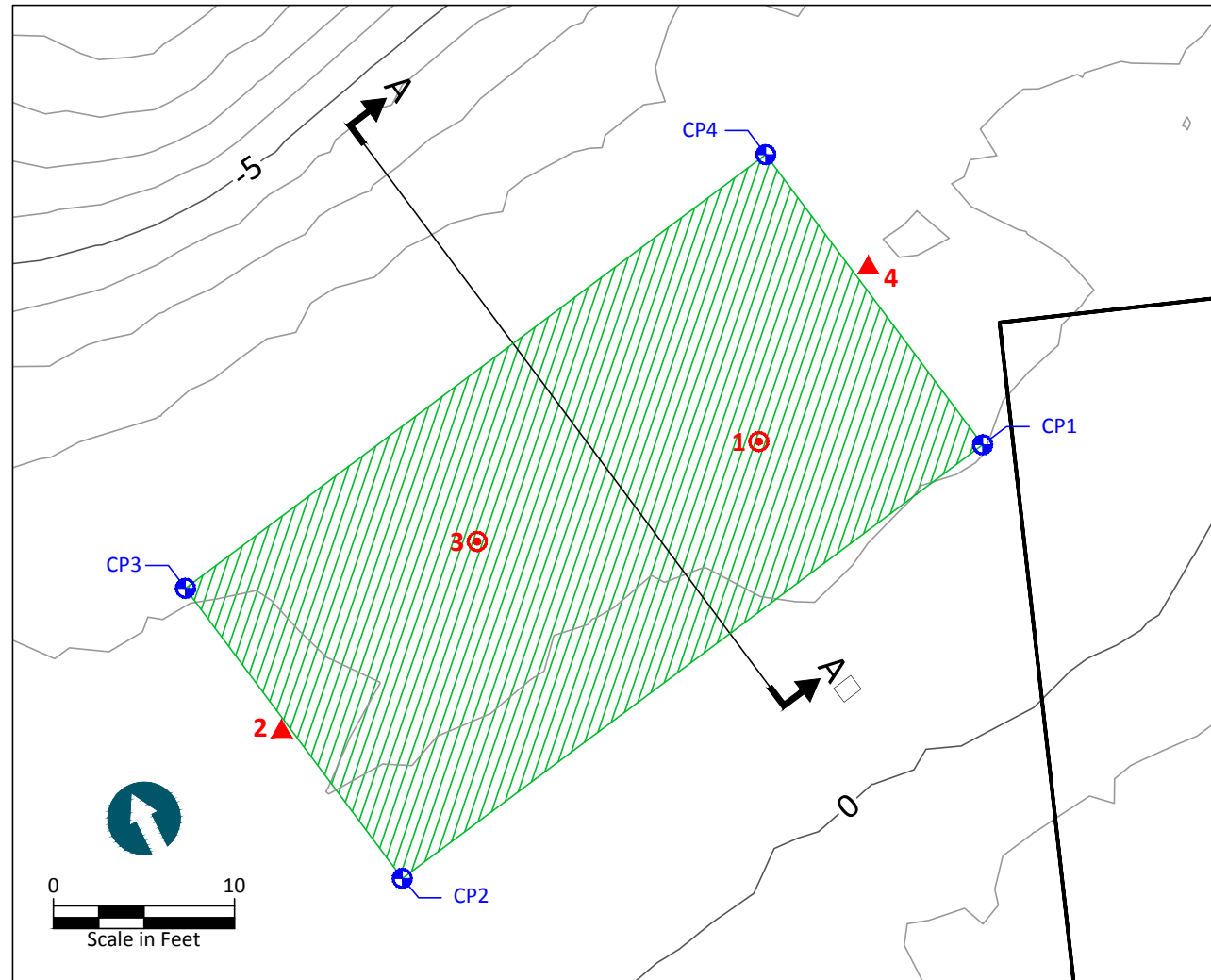
LEGEND:

- October 2015 Bathymetric and Topographic Contours (1 Foot Interval)
- USEPA Probe Location (December 2015), Rock
- USEPA Probe Location (December 2015), Soft Sediment
- Post Construction Probe Location and Rock Thickness in Feet
- Surveyed Extent of Installed Geotextile and Geomembrane in Western Cell
- Armored Cap Type and Boundary
- Historic Impoundment Limits
- > 1.0 Foot Increase
- 0.5 Foot Increase to 1.0 Foot Increase
- 0.5 Foot Increase to 0.5 Foot Decrease
- 0.5 Foot Decrease to 1.0 Foot Decrease
- > 1.0 Foot Decrease
- Example 30'x30' Area

**SOURCE:** Drawing prepared from surveys provided by Hydrographic Consultants dated July 2015 and October 2015.  
**HORIZONTAL DATUM:** Texas State Plane South Central, NAD83, U.S. Feet.  
**VERTICAL DATUM:** NAVD 88.



M:\CAD\Projects\0557-mcginnes industrial maintenance corp\san jacinto waste pits\quarterly inspection reports\2015-10\0557-QIR-005.dwg Rock Placement Area  
Dec 15, 2015 8:56am dholmer

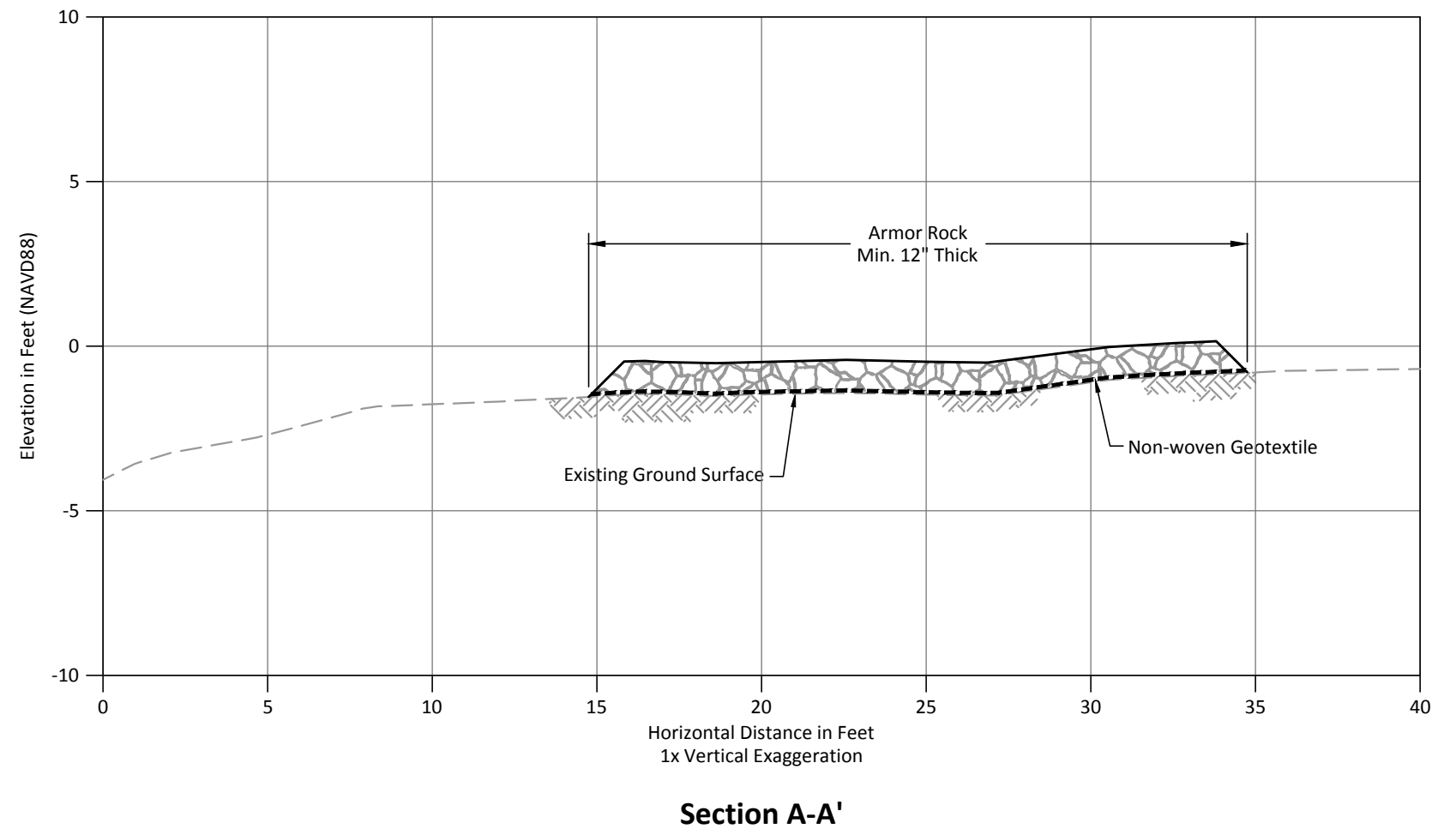


**SOURCE:** Drawing prepared from surveys provided by Hydrographic Consultants dated July 2015 and October 2015.  
**HORIZONTAL DATUM:** Texas State Plane South Central, NAD83, U.S. Feet.  
**VERTICAL DATUM:** NAVD 88.

**LEGEND:**

- October 2015 Bathymetric and Topographic Contours (1 Foot Interval)
- 4▲ USEPA Probe Location (December 2015), Rock
- 1⊙ USEPA Probe Location (December 2015), Soft Sediment
- Geotextile and Rock Placement Area
- B/C Armored Cap Type and Boundary
- CP4 ● Control Point

| CONTROL POINTS |            |           |
|----------------|------------|-----------|
| POINT #        | NORTHING   | EASTING   |
| CP1            | 13857773.6 | 3216973.5 |
| CP2            | 13857766.4 | 3216934.2 |
| CP3            | 13857786.1 | 3216930.6 |
| CP4            | 13857793.3 | 3216970.0 |



**Figure 2**  
Rock Placement Area  
Post TCRA Inspection  
San Jacinto River Waste Pits Superfund Site

## TABLES

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**Table 1**  
**Analytes, Method Reporting Limits, and Method Detection Limits for Sediment Samples**

| Analyte  | CAS Number | Method Detection Limit <sup>a</sup> | Method Reporting Limit <sup>a</sup> |
|--|------------|-------------------------------------|-------------------------------------|
| <b>Conventionals</b>                               |            |                                     |                                     |
| Grain size distribution                            | --         | NA                                  | NA                                  |
| Total organic carbon (percent)                     | --         | 0.02                                | 0.05                                |
| <b>Organics</b>                                    |            |                                     |                                     |
| Dioxins/furans (ng/kg-dry weight)                  |            |                                     |                                     |
| 1,2,3,4,6,7,8-Heptachlorodibenzo- <i>p</i> -dioxin | 35822-46-9 | 0.0539                              | 2.5                                 |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran              | 67562-39-4 | 0.0482                              | 2.5                                 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran              | 55673-89-7 | 0.0561                              | 2.5                                 |
| 1,2,3,4,7,8-Hexachlorodibenzo- <i>p</i> -dioxin    | 39227-28-6 | 0.0616                              | 2.5                                 |
| 1,2,3,4,7,8-Hexachlorodibenzofuran                 | 70648-26-9 | 0.0688                              | 2.5                                 |
| 1,2,3,6,7,8-Hexachlorodibenzo- <i>p</i> -dioxin    | 57653-85-7 | 0.0500                              | 2.5                                 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran                 | 57117-44-9 | 0.0489                              | 2.5                                 |
| 1,2,3,7,8,9-Hexachlorodibenzo- <i>p</i> -dioxin    | 19408-74-3 | 0.0525                              | 2.5                                 |
| 1,2,3,7,8,9-Hexachlorodibenzofuran                 | 72918-21-9 | 0.0521                              | 2.5                                 |
| 1,2,3,7,8-Pentachlorodibenzofuran                  | 57117-41-6 | 0.0501                              | 2.5                                 |
| 1,2,3,7,8-Pentachlorodibenzo- <i>p</i> -dioxin     | 40321-76-4 | 0.0656                              | 2.5                                 |
| 2,3,4,6,7,8-Hexachlorodibenzofuran                 | 60851-34-5 | 0.0490                              | 2.5                                 |
| 2,3,4,7,8-Pentachlorodibenzofuran                  | 57117-31-4 | 0.0444                              | 2.5                                 |
| 2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin       | 1746-01-6  | 0.0664                              | 0.5                                 |
| 2,3,7,8-Tetrachlorodibenzofuran                    | 51207-31-9 | 0.0726                              | 0.5                                 |
| Octachlorodibenzo- <i>p</i> -dioxin                | 3268-87-9  | 0.0990                              | 5                                   |
| Octachlorodibenzofuran                             | 39001-02-0 | 0.0782                              | 5                                   |
| Total tetrachlorinated dioxins                     | 41903-57-5 | NA                                  | 0.5                                 |
| Total pentachlorinated dioxins                     | 36088-22-9 | NA                                  | 2.5                                 |
| Total hexachlorinated dioxins                      | 34465-46-8 | NA                                  | 2.5                                 |
| Total heptachlorinated dioxins                     | 37871-00-4 | NA                                  | 2.5                                 |
| Total tetrachlorinated furans                      | 30402-14-3 | NA                                  | 0.5                                 |
| Total pentachlorinated furans                      | 30402-15-4 | NA                                  | 2.5                                 |
| Total hexachlorinated furans                       | 55684-94-1 | NA                                  | 2.5                                 |
| Total heptachlorinated furans                      | 38998-75-3 | NA                                  | 2.5                                 |

**Notes**

-- = information not available

NA = not applicable

a - Method detection limits and method reporting limits are updated periodically by the laboratories. Limits that are in effect at the laboratory at the time of analysis will be used for sample analysis and data validation. These may differ slightly from the control limits shown in this table.

**Table 2**  
**Sample Containers, Preservation, and Holding Time Requirements**

| Matrix                       | Container <sup>a</sup> |       | Laboratory | Parameter      | Preservation  | Holding Time               | Sample Size <sup>b</sup> |
|------------------------------|------------------------|-------|------------|----------------|---|----------------------------|--------------------------|
|                              | Type                   | Size  |            |                |   |                            |                          |
| Sediment                     |                        |       |            |                |   |                            |                          |
|                              | WMG                    | 8 oz  | TBD        | TOC            | 4±2°C   | 28 days                    | 1 g                      |
|                              | WMG                    | 16 oz |            | Grain size     | 4±2°C   | 6 months                   | 100 g                    |
|                              | WMG                    | 8 oz  | TBD        | Dioxins/furans | 4±2°C/Deep frozen (−20°C) <sup>c</sup> / −10°C <sup>d</sup> | 1 year/1 year <sup>e</sup> | 50 g                     |
| Equipment Filter Wipe Blanks |                        |       |            |                |   |                            |                          |
|                              | AG                     | 4 oz  | TBD        | Dioxins/furans | 4±2°C   | 1 year/1 year <sup>e</sup> | 3 wipe                   |

**Notes**

AG = amber glass

TBD = to be determined

TOC = total organic carbon

WMG = wide mouth glass

a - The size and number of containers may be modified by the analytical laboratory.

b - Sample sizes may be modified one laboratory selection is made.

c - Samples will be shipped to the laboratory on ice at 4±2°C. Once received at the laboratory, samples will be stored at –20°C.

d - Extracts will be stored at –10°C.

e - Holding time for samples prior to extraction/ holding time for extracts.

## ATTACHMENT 2

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614 Magnolia Avenue  
Ocean Springs, Mississippi 39564  
Phone 228.818.9626  
Fax 228.818.9631

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December 28, 2015

Gary Miller, Remedial Project Manager  
U.S. Environmental Protection Agency, Region 6  
Superfund Division (6SF-RA)  
1445 Ross Avenue, Suite 1200  
Dallas, Texas 75202-2733

Re: Revised Work Plan for Rock Placement on the Time Critical Removal Action  
Armored Cap, San Jacinto River Waste Pits Superfund Site, Channelview, Texas

Dear Gary:

This revised [final] work plan (Revised Work Plan) is submitted in response to your letter dated December 22, 2015 (December 22 Letter). The December 22 Letter approved the work plan submitted on behalf of Respondents McGinnes Industrial Maintenance Corporation and International Paper Company (Respondents) on December 21, 2015 (Draft Work Plan), with modifications, and directed that a revised work plan be submitted by December 28, 2015. Pursuant to the December 22 Letter and the authorization contained in a separate email dated December 22, 2015, sampling and related activities as described in the Work Plan were performed on December 23, 2015, with U.S. Environmental Protection Agency (USEPA) oversight. Additional samples were also collected in response to Comment No. 8 of the comments attached to the December 22 Letter.

As part of the Time Critical Removal Action (TCRA) at the San Jacinto River Waste Pits Superfund Site (Site), an armored cap was constructed adjacent to the San Jacinto River north of the Interstate 10 (I-10) bridge. The USEPA performed an underwater inspection of the armored cap on December 9 and 10, 2015, and identified an area on the northwestern part of the cap that requires placement of additional cap material (Figure 1).

In accordance with the email from you on December 16, 2015, Respondents propose the following:

- Delineation and collection of surface sediment samples in the area in which cap material will be placed (referred to by USEPA as the “damaged area” and “repair area,” and referred to in this Revised Work Plan as the “Work Area”)
- Placement of cap material over the Work Area

The following provides details on the approach and procedures for completing the work, including a description of the Work Area based on the investigation conducted on December 23, 2015, and a response to comments attached to the December 22 Letter. In light of the fact that sediment samples were collected on December 23, 2015, with USEPA oversight, this Revised Work Plan does not address sediment sampling.

### **Delineation of the Work Area and Identification of Sample Locations**

As outlined in the Draft Work Plan, probing was conducted to delineate the Work Area on December 23, 2015. Probes were advanced at approximately 5-foot intervals along a series of transects to determine any locations in which cap material could not be identified as being present at the TCRA design minimum thickness of 1 foot. Per your directive, additional probing was conducted outside of the Work Area along, and at the toe, of the submerged slope for any indication of a buildup of armor rock at the bottom of the slope (Figure 2).

Global Positioning System (GPS) coordinates were collected to define the perimeter of the Work Area, and survey stakes were driven at locations along the perimeter so the contractor would have visual confirmation of the Work Area during cap maintenance activities.

The probing and sediment sampling during the delineation of the Work Area indicated that armored rock was present over the entire area; however, the cap material was intermixed with shells and soft sediment. The Work Area, shown in Figure 2, measured approximately 20 feet by 22 feet and was on the shelf above the slope that exists in the northwestern part of the armored cap. The water depth in the Work Area was approximately 8 to 18 inches at the time of the delineation and sampling. Areas outside of the Work Area were found to be a solid substrate of armor rock and shells that acted to bind the armor material together,

---

making probe penetration difficult. There was not any indication of build-up of armor rock at the toe of the slope outside of the Work Area.

Because of the amount of cap material and the relatively large size of those materials, it was difficult to collect sediment samples within the Work Area; however, three samples were collected within the Work Area after several attempts under your supervision. Probes of the “shelf” between the damaged area and the slope showed that the area did not have a sediment accumulation that could be sampled. With your concurrence, four additional samples were taken from soft sediment accumulations on top of the armored cap material at the base of the slope below the damaged area and then further north (Figure 2).

### **Placement of Geotextile and Armor Rock**

Geotextile and armor rock will be placed over the Work Area with overlap beyond the boundaries of the Work Area, as described below. No existing armor rock is proposed to be removed.

As part of the TCRA planning for cap maintenance, two stockpiles of armor rock (armor rock C and armor rock D) were purchased and staged near the Site. Both armor rock C and armor rock D are larger than the armor rock A used in this portion of the armored cap. Non-woven geotextile will be placed over the Work Area, with a minimum 1-foot thickness of armor rock C on top of the geotextile. The armor rock C will provide long-term reliability of the cap surface from currents, winds, and waves in the area.

The Work Area is a relatively level area located on the shelf above a submerged slope and is set back approximately 15 feet from the top of the slope (Figure 2). Geotextile will be placed using procedures similar to those used during the original cap construction. Because the Work Area is relatively level, the geotextile and armor rock can be placed directly over the Work Area without the use of gravel filter material. As stated previously, the Work Area is relatively level, so construction techniques, such as placement of gravel filter material, and placing armor rock from the bottom up the slope are not required. Geotextile will be initially placed to provide complete coverage between the corner survey stakes that were placed as part of the Work Area delineation. These stakes will provide a visual reference above the water line that will allow the contractor to place the geotextile and armor rock

---

accurately. Geotextile seams will be either sewn before deployment or overlapped in accordance with supplier recommendations or at least 2 feet, whichever is greater.

As the geotextile is being placed, rocks will be placed on top of the geotextile edge to secure the geotextile and prevent it from floating. Rock will be placed in the water by a long-reach excavator bucket, and from a maximum drop height of 2 feet, to spread a uniform thickness of rock close to and across the entire geotextile surface. This technique will minimize rock fall energy during placement. Similar methods were used during the TCRA construction for underwater geotextile and rock placement.

The final extent of the cover will be such that there will be at least 5 feet of overlap of the geotextile into the armored cap areas surrounding the Work Area. A minimum of 1 foot of armor rock will be placed over all geotextile, and the edges of the armor rock will be tapered into the surrounding intact armored cap in areas beyond the geotextile. Confirmation probing will be performed at 5-foot intervals throughout the Work Area to assure the minimum 1-foot thickness of armor rock is present over the geotextile. This technique was also used following the original cap construction to assure adequate cap thickness was attained. A bathymetric survey of the area will also be performed following the probing to provide post-construction survey data that can be used as a baseline for future armored cap inspection and monitoring.

Work will be conducted by the Respondents' on-call contractor, USA Environment, L.P. (USA). Based on discussions with USA, access to the Work Area from the land-side is necessary due to shallow water conditions. Consistent with previous land-based construction during the original armored cap construction, work will be conducted as follows:

- Rock will be delivered using dump trucks to a stockpile area at the southeastern entrance to the armored cap, and that is not on the TxDOT right-of-way.
  - Small equipment will be used to move rock from the delivery location to a stockpile near the Work Area.
  - The rock will be transferred from the stockpile into the Work Area using a long-reach excavator working on mats to limit ground contact pressure.
-

- Work will be done during low water conditions, which are both tide- and weather-dependent at the Site.

The construction duration is estimated to be 1 to 2 weeks.

## **Schedule**

With USEPA's approval of this Revised Work Plan, mobilization of construction equipment and cap material will begin on Tuesday, December 29, 2015, assuming weather, tide, and access conditions allow those activities. Please do not hesitate to contact me if you would like to discuss anything.

Sincerely,



David C. Keith  
Project Coordinator  
Anchor QEA, LLC

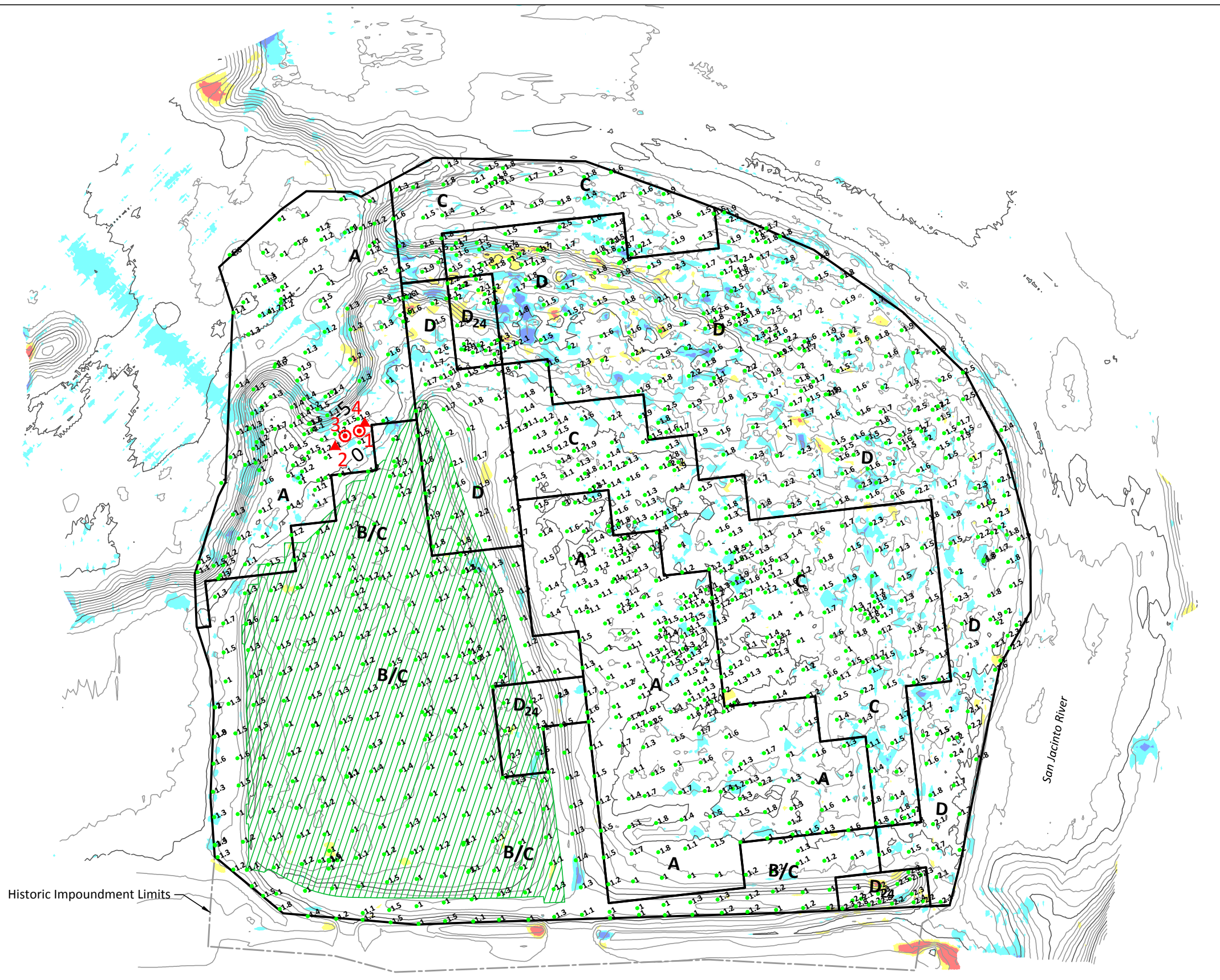
cc: Phil Slowiak, International Paper Company  
Dave Moreira, McGinnes Industrial Maintenance Corporation  
John Laplante, Anchor QEA, LLC

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## FIGURES

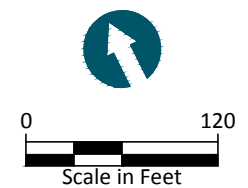
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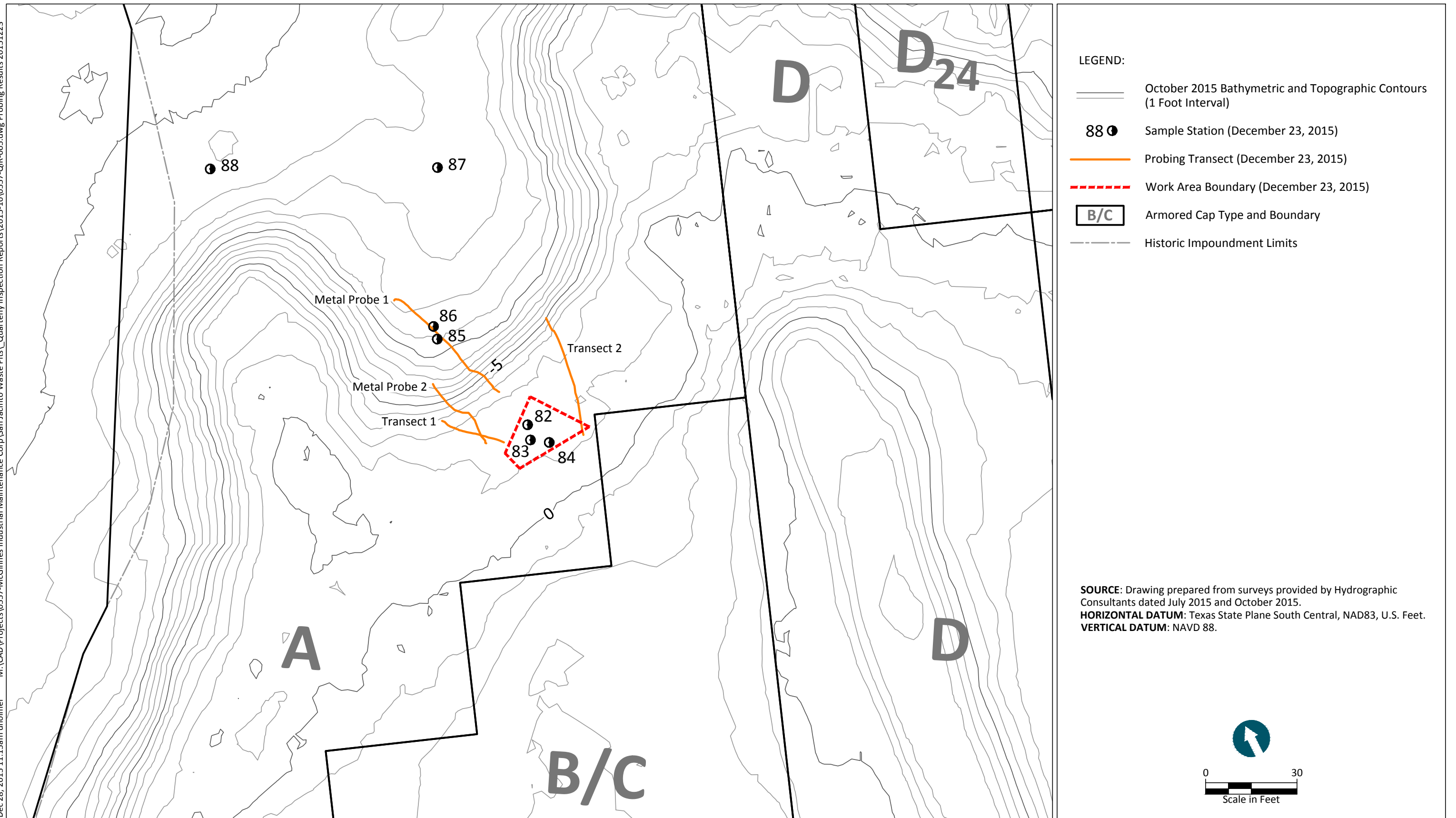
LEGEND:

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- USEPA Probe Location (December 2015), Rock
- USEPA Probe Location (December 2015), Soft Sediment
- Post Construction Probe Location and Rock Thickness in Feet
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- 0.5 Foot Increase to 1.0 Foot Increase
- 0.5 Foot Increase to 0.5 Foot Decrease
- 0.5 Foot Decrease to 1.0 Foot Decrease
- > 1.0 Foot Decrease
- Example 30'x30' Area

**SOURCE:** Drawing prepared from surveys provided by Hydrographic Consultants dated July 2015 and October 2015.  
**HORIZONTAL DATUM:** Texas State Plane South Central, NAD83, U.S. Feet.  
**VERTICAL DATUM:** NAVD 88.



M:\CAD\Projects\0557-McGinnes Industrial Maintenance Corp\San Jacinto Waste Pits\Quarterly Inspection Reports\2015-10\0557-QIR-005.dwg Probing Results 20151223  
Dec 28, 2015 11:15am dholmer



## ATTACHMENT 3

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## DAILY REPORT

PAGE 1 OF 4

|  |   |  |                       |                     |
|--|---|--|-----------------------|---------------------|
| <b>PROJECT</b>                                 | San Jacinto River Waste Pits TCRA Maintenance |  | <b>CONTRACT NO.</b>   |                     |
| <b>CONTRACTOR</b>                              | USA Environment, LP                           |  | <b>SUPERINTENDENT</b> | Larry Jones         |
| <b>DAY OF WEEK &amp; DATE:</b>                 | Tuesday, December 29, 2015                    |  | <b>REPORT NO.</b>     | 001                 |
| <b>WEATHER</b>                                 | Cloudy with light breeze from the east        |  | <b>TEMPERATURE</b>    | L:42 H:51 degrees F |
| <b>NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:</b> |   | <b>MAJOR EQUIPMENT ON JOB (Size/capacity and hours):</b> |                       |                     |
| 7 – USA Environment                            |   | Excavator<br>Skid steer                                  |                       |                     |
| <b><u>TIDE INFORMATION:</u></b>                |   | <b><u>HEALTH AND SAFETY INFORMATION:</u></b>             |                       |                     |
| Time: n/a      Height: n/a                     |   | No incidents or near misses on this date.                |                       |                     |

### **CHRONOLOGICAL ACCOUNT OF DAY'S WORK:**

0845 – Anchor QEA arrives onsite and discusses daily activities with USA Environment LP's (USA) superintendent, Larry Jones. Skid steer and excavator arrived onsite prior to 0800. USA prepping central berm for mat placement.

0900 – Brian Yost (EA Engineering) arrives onsite.

0915 – Health & safety meeting with B. Yost followed by site tour.

0935 to 1030 - Three truckloads of mats are delivered to Site. USA begins placing mats along central berm as a wooden road for skid steer.

1030 to 1200 – USA finishes placing mats along central berm.

1245 to 1430 – USA stacks mats on northern end of central berm near work area. Mats will be arranged as a landing pad for the long stick excavator tomorrow morning.

1430 to 1500 – Excavator is removed from Site, and long stick excavator arrives onsite.

1500 – B. Yost, H. Samaha, and USA offsite.

### **Summary of Progress on this Date:**

- Mobilized equipment onsite for maintenance activities
- Began placement of mats on TCRA cap

### **Persons Onsite on this Date:**

Holly Samaha (Anchor QEA)  
Brian Yost (EA Engineering)  
USA Environment Crew

# DAILY REPORT

PAGE 2 OF 4

## **Material Delivery Summary as of this Date:**

| Material | Units | Delivered (units) | Delivery Verification Method | Preceding Delivered Total | Total Delivered for Project |
|----------|-------|-------------------|------------------------------|---------------------------|-----------------------------|
| Type C   | ton   | 0                 | Truck bed measure            | 0                         | 0                           |

**TESTS PERFORMED:** None

## **PHONE LOG:**

1050 – H. Samaha call with W. Mears to discuss maintenance progress.  
1440 – H. Samaha call with W. Mears to discuss maintenance progress.

## **SITE PHOTOS/VIDEOS TAKEN: (attached below)**

Five photographs with captions

## **FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**

None

|                   |              |     |      |      |            |
|-------------------|--------------|-----|------|------|------------|
| QA REPRESENTATIVE | Holly Samaha | HRS | 6.25 | DATE | 12/29/2015 |
|-------------------|--------------|-----|------|------|------------|



Photograph 1 – Mats arriving onsite.



Photograph 2 – Excavator placing mats along central berm.



Photograph 3 – Stacked mats near work area.





Photograph 4 – Wooden mat road along central berm.



Photograph 5 – Long stick excavator, skid steer, and geotextile onsite in preparation for remaining maintenance activities.





## DAILY REPORT

PAGE 1 OF 4

|  |   |  |                       |                     |
|--|---|--|-----------------------|---------------------|
| <b>PROJECT</b>                                   | San Jacinto River Waste Pits TCRA Maintenance |  | <b>CONTRACT NO.</b>   |                     |
| <b>CONTRACTOR</b>                                | USA Environment, LP                           |  | <b>SUPERINTENDENT</b> | Larry Jones         |
| <b>DAY OF WEEK &amp; DATE:</b>                   | Wednesday, December 30, 2015                  |  | <b>REPORT NO.</b>     | 002                 |
| <b>WEATHER</b>                                   | Cloudy with winds from the north              |  | <b>TEMPERATURE</b>    | L:51 H:55 degrees F |
| <b>NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:</b>   |   | <b>MAJOR EQUIPMENT ON JOB (Size/capacity and hours):</b> |                       |                     |
| 7 – USA Environment<br>1 – Kenneth Parker (boat) |   | Skid steer<br>Long stick excavator<br>Front end loader   |                       |                     |
| <b><u>TIDE INFORMATION:</u></b>                  |   | <b><u>HEALTH AND SAFETY INFORMATION:</u></b>             |                       |                     |
| Time: n/a      Height: n/a                       |   | No incidents or near misses on this date.                |                       |                     |

### **CHRONOLOGICAL ACCOUNT OF DAY'S WORK:**

0645 – Anchor QEA, USEPA, USA, and EA Engineering onsite.

0700 – Health and safety meetings.

0730 to 1130 – G. Miller, B. Yost, D. Thomas, and H. Samaha observed:

- Placement of mats near repair area to act as a base for long stick excavator
- Delivery of six truck loads of Type C armor rock, holding 10 cubic yards each
- Transport of armor rock to north end of Western Cell by skid steer and front loader
- Cutting of geotextile fabric into 35 foot lengths

1130 to 1245 – H. Samaha checks on remaining stockpile of Type C armor rock at Blue Bonnet site. Excavator remains on property and gates are locked.

1230 to 1325 – Complete transport of armor rock to north end of Western Cell.

1330 to 1700 – Place geotextile and armor rock over work area.

1700 to 1725 – Stack mats at north end of central berm for storage overnight.

1730 – Anchor QEA, USA, USEPA, and EA Engineering offsite.

### **Summary of Progress on this Date:**

- Transported Type C armor rock to Site
- Completed installation of geotextile and armor rock over work area

### **Persons Onsite on this Date:**

Holly Samaha (Anchor QEA)

Gary Miller (USEPA)

Brian Yost, Duane Thomas (EA Engineering)

USA Environment Crew & Contractor

# DAILY REPORT

PAGE 2 OF 4

## Material Delivery Summary as of this Date:

| Material | Units       | Delivered (units) | Delivery Verification Method | Preceding Delivered Total | Total Delivered for Project |
|----------|-------------|-------------------|------------------------------|---------------------------|-----------------------------|
| Type C   | cubic yards | 60                | Truck bed measure            | 0                         | 60                          |

**TESTS PERFORMED:** None

## PHONE LOG:

0947 – H. Samaha call with W. Mears to discuss amount of Type C rock needed, weight tickets, and maintenance progress.  
 1030 – H. Samaha call with W. Mears to discuss load of skid steer transporting rock across Western Cell.  
 1455 – H. Samaha call with W. Mears to discuss maintenance progress.  
 1640 – H. Samaha call with W. Mears to discuss probing technique and demobilization of equipment from Blue Bonnet stockpile site.

## SITE PHOTOS/VIDEOS TAKEN: (attached below)

Four photographs with captions

## FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:

None

|                   |              |     |       |      |            |
|-------------------|--------------|-----|-------|------|------------|
| QA REPRESENTATIVE | Holly Samaha | HRS | 10.75 | DATE | 12/30/2015 |
|-------------------|--------------|-----|-------|------|------------|



Photograph 1 – Assembling mats near work area as a base for the long stick excavator.



Photograph 2 – Delivering Type C rock at the base of the access ramp near the intersection of central and southern berms.



Photograph 3 – Placing geotextile over work area.





Photograph 4 – Placing Type C rock on top of geotextile layer in work area.



## DAILY REPORT

PAGE 1 OF 3

|  |   |  |                       |                     |
|--|---|--|-----------------------|---------------------|
| <b>PROJECT</b>                                 | San Jacinto River Waste Pits TCRA Maintenance |  | <b>CONTRACT NO.</b>   |                     |
| <b>CONTRACTOR</b>                              | USA Environment, LP                           |  | <b>SUPERINTENDENT</b> | Larry Jones         |
| <b>DAY OF WEEK &amp; DATE:</b>                 | Thursday, December 31, 2015                   |  | <b>REPORT NO.</b>     | 003                 |
| <b>WEATHER</b>                                 | Cloudy with winds from the north              |  | <b>TEMPERATURE</b>    | L:46 H:60 degrees F |
| <b>NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:</b> |   | <b>MAJOR EQUIPMENT ON JOB (Size/capacity and hours):</b> |                       |                     |
| 8 – USA Environment                            |   | Skid steer<br>Long stick excavator<br>Front end loader   |                       |                     |
| <b><u>TIDE INFORMATION:</u></b>                |   | <b><u>HEALTH AND SAFETY INFORMATION:</u></b>             |                       |                     |
| Time: n/a      Height: n/a                     |   | No incidents or near misses on this date.                |                       |                     |

### **CHRONOLOGICAL ACCOUNT OF DAY'S WORK:**

0645 – Anchor QEA, USEPA, USA, and EA Engineering onsite.

0700 – Health and safety meetings.

0725 to 1100 – H. Samaha and USA conduct probing of work area. For locations with an initial thickness less than 1 foot, additional Type C armor rock was added and the location was probed again for verification.

1100 – Cesar Garcia, project manager for USA, onsite. Began demobilization of mats.

1115 to 1130 – Transport remaining armor rock to east access ramp.

1150 – USEPA and EA Engineering offsite.

1240 to 1430 – H. Samaha observed:

- Staging of mats and equipment on southern berm and near east access ramp for holiday weekend.
- Transport of remaining armor rock from this maintenance event to a previous stockpile near the intersection of central and southern berms. The total volume of available armor rock is estimated to be 10 cubic yards.

1440 – Anchor QEA and USA offsite.

### **Summary of Progress on this Date:**

- Completed probing of work area
- Placed additional Type C armor rock in work area if initial thickness was less than 1 foot based on probing
- Began demobilization

### **Persons Onsite on this Date:**

Holly Samaha (Anchor QEA)

Gary Miller (USEPA)

Duane Thomas (EA Engineering)

USA Environment Crew

# DAILY REPORT

PAGE 2 OF 3

## Material Delivery Summary as of this Date:

| Material | Units       | Delivered (units) | Delivery Verification Method | Preceding Delivered Total | Total Delivered for Project |
|----------|-------------|-------------------|------------------------------|---------------------------|-----------------------------|
| Type C   | cubic yards | 0                 | Truck bed measure            | 60                        | 60                          |

**TESTS PERFORMED:** None

## PHONE LOG:

0733 – H. Samaha call with W. Mears to discuss daily reports, survey schedule, and probing method. Similar calls made at 0804, 0813, 0825, and 0846.

## SITE PHOTOS/VIDEOS TAKEN: (attached below)

Three photographs with captions

## FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:

None

QA REPRESENTATIVE

Holly Samaha

HRS

8

DATE

12/31/2015



Photograph 1 – Probing for thickness of armor rock in repair area.





Photograph 2 – Stockpile of armor rock near intersection of central and southern berms.



Photograph 3 – Mats and equipment staged for holiday weekend.



## DAILY REPORT

PAGE 1 OF 4

|  |   |  |                       |                       |
|--|---|--|-----------------------|-----------------------|
| <b>PROJECT</b>                                 | San Jacinto River Waste Pits TCRA Maintenance |  | <b>CONTRACT NO.</b>   |                       |
| <b>CONTRACTOR</b>                              | USA Environment, LP                           |  | <b>SUPERINTENDENT</b> | Larry Jones           |
| <b>DAY OF WEEK &amp; DATE:</b>                 | Monday, January 4, 2016                       |  | <b>REPORT NO.</b>     | 004                   |
| <b>WEATHER</b>                                 | Sunny   |  | <b>TEMPERATURE</b>    | L: 43 H: 59 degrees F |
| <b>NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:</b> |   | <b>MAJOR EQUIPMENT ON JOB (Size/capacity and hours):</b> |                       |                       |
| 5 – USA Environment                            |   | Skid steer<br>Long stick excavator<br>Front end loader   |                       |                       |
| <b><u>TIDE INFORMATION:</u></b>                |   | <b><u>HEALTH AND SAFETY INFORMATION:</u></b>             |                       |                       |
| Time: n/a      Height: n/a                     |   | No incidents or near misses on this date.                |                       |                       |

### **CHRONOLOGICAL ACCOUNT OF DAY'S WORK:**

0640 – Anchor QEA and USA onsite.

0700 – Health and safety meetings.

0725 to 1105 – Demobilization of mats, skid steer, and front end loader.

0920 – H. Samaha observed work area during low tide. Recently placed geotextile was exposed along southern portion of work area. Anchor QEA and USA plan to cover exposed geotextile areas with additional Type C armor rock stockpiled at the Site.

1015 – Hydrographic Consultants onsite.

1055 to 1130 – Placed additional armor rock in work area to cover exposed geotextile.

1135 – Hydrographic Consultants begin survey of work area.

1215 – Long stick excavator removed from Site, and demobilization is complete. Anchor QEA and USA offsite.

### **Summary of Progress on this Date:**

- Placed additional Type C armor rock in work area
- Completed demobilization
- Surveyed work area

### **Persons Onsite on this Date:**

Holly Samaha (Anchor QEA)

USA Environment Crew

Hydrographic Consultants surveyors (2)



# DAILY REPORT

PAGE 2 OF 4

## Material Delivery Summary as of this Date:

| Material | Units       | Delivered (units) | Delivery Verification Method | Preceding Delivered Total | Total Delivered for Project |
|----------|-------------|-------------------|------------------------------|---------------------------|-----------------------------|
| Type C   | cubic yards | 0                 | Truck bed measure            | 60                        | 60                          |

**TESTS PERFORMED:** None

## PHONE LOG:

0932 – H. Samaha call with W. Mears to discuss placement of additional rock in work area.

## SITE PHOTOS/VIDEOS TAKEN: (attached below)

Five photographs with captions

## FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:

None

QA REPRESENTATIVE

Holly Samaha

HRS

6

DATE

1/4/2016



Photograph 1 – Demobilization of mats.



Photograph 2 – Addition of armor rock to areas with exposed geotextile seen during low tide.



Photograph 3 – Work area during low tide after maintenance was complete.





Photograph 4 – Long stick excavator leaving Site.



Photograph 5 – Locked access gate after maintenance event was finished.

## ATTACHMENT 4

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# Crown Resources



2694 Hayes Wilbank Road  
Toccoa, GA 30577  
(864)968-0592

## Geotextile Product Description Sheet

### Style R080

R080 is a nonwoven geotextile produced by needlepunching synthetic staple fibers in a random network to form a high strength dimensionally stable fabric. The fibers are specially formulated to resist ultraviolet light deterioration, and are inert to commonly encountered soil chemicals. The fabric will not rot or mildew, is non-biodegradable, and is resistant to damage from insects and rodents. Polypropylene is stable within a pH range of 2 to 13. R080 conforms to the physical property values listed below:

| Fabric Property              | Test Method | Units               | Minimum Average Roll Value |
|------------------------------|-------------|---------------------|----------------------------|
| Grab Tensile                 | ASTM D 4632 | lbs.                | 205 (.911 kN)              |
| Grab Elongation              | ASTM D 4632 | %                   | 50                         |
| Trap Tear                    | ASTM D 4533 | lbs.                | 80 (.356 kN)               |
| CBR Puncture                 | ASTM D 6241 | lbs                 | 525 (2.33 kN)              |
| Permittivity*                | ASTM D 4491 | 1/sec               | 1.4                        |
| Water Flow*                  | ASTM D 4491 | gpm/sqft            | 90 (3657 l/min/sm)         |
| AOS                          | ASTM D 4751 | U.S. Sieve          | 80 (.180 mm)               |
| UV Resistance after 500 hrs. | ASTM D 4355 | % Strength Retained | 70                         |
| <b>Packaging</b>             |             |                     |                            |
| Roll Dimensions-Feet         |             |                     | 12.5 x 360/15 x 300        |
| Square Yards Per Roll        |             |                     | 500                        |
| Estimated Roll Weight-Lbs.   |             |                     | 250                        |

\* At time of manufacturing, handling may change these properties.

To the best of our knowledge, the information contained herein is accurate. However, Crown Resources cannot anticipate all conditions under which the product information and our products, or the products of other manufacturers in combination with our products, may be used. We accept no responsibility for results obtained by the application of this information or the safety or suitability of our products either alone or in combination with other products. Final determination of the suitability of any information or material for the use contemplated, of its manner of use, and whether the suggested use infringes any patents is the sole responsibility of the user.